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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,825	04/12/2001	Kazunori Kaneda	Q64042	1925

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EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 11/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/832,825

Applicant(s)

KANEDA, KAZUNORI

Examiner

Justin R Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 4-6, 8, 9, 11, 13, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 2, 4-6, 8, 9, 11, 13, and 15, the language "the rubber composition" appears in claim 2, line 10. There is insufficient antecedent basis for this limitation in the claim. In this instance, applicant defines a first rubber composition in the composite layer and a second rubber composition in the rubber composition layer. As such, it is unclear which composition is required to have an inorganic filler. In light of the specification (Page 4, Lines 2-3), it appears that applicant intends the language of the claim to read "a basic inorganic filler being compounded into at least one rubber composition". For examination purposes, it is assumed that the inorganic filler must be present in either or both of the respective layers (composite layer or rubber composition layer).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-6 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Leo (US 4,057,529). Leo teaches the manufacture of a rubber/cord laminate having a high level of adhesion between rubber and metal (steel) before and after thermal aging, wherein said rubber contains magnesium oxide or magnesium carbonate (both inorganic fillers are suggested by applicant). In describing said laminate, Leo states the rubber compositions are "particularly well suited for use in the manufacture of metal-reinforced rubber articles, such as tires reinforced with steel or alloy-plated steel cords" (Column 2, Lines 15-20). It should also be noted that Leo describes magnesium oxide as the preferred magnesium compound (Column 1, Lines 7-15 and Column 2, Lines 38-51).

As per claims 2 and 10-13, applicant requires that there is a "rubber composition layer" that is adjacent the rubber/cord laminate. In this instance, as stated above, the claim is being examined as if the organic filler is required in at least one of the respective rubber layers. Leo generically describes the use of a rubber composition to form a topping or covering layer for a metal-reinforced tire component. While Leo fails to expressly suggest the claimed tire components (carcass or belt), it is clearly evident that the description of a tire with metal-reinforced rubber articles is directed to the use of the composition of Leo in a carcass or a belt as both of these tire components represent the fundamental tire structure in which reinforcing elements are included. Thus, if the rubber composition of Leo were used in either the carcass or the belt, it would necessarily be surrounded by an additional rubber composition. For example, if the rubber composition was used in a carcass structure, the innerliner or sidewall would represent a "rubber composition layer" that adjoins said carcass structure. Also, if the

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rubber composition were used in the belt structure, the tread would represent a "rubber composition layer" that adjoins said belt structure. It should be noted that the claim only requires the inclusion of a "rubber composition layer" that adjoins the rubber/cord laminate, although the use of an inorganic filler in the rubber composition layer represents the inclusion of a well known and extensively used additive in a variety of tire components.

With respect to claims 3-6, the magnesium compound is included in an amount that is less than 10 phr and preferably less than 5 phr (Column 2, Lines 57-60).

Regarding claim 9, applicant requires that "at least one of the outer most layers" of the tire reinforcing member is the rubber composition layer. In this instance, where the composition of Leo is used in a belt structure, the tread would represent a "rubber composition layer" that adjoins said belt structure and is arranged outward of the rubber/cord laminate. Also, if the composite layer (rubber/cord laminate) is a carcass structure, the sidewall rubber layer would represent a "rubber composition layer" that adjoins said carcass structure and is arranged outward of the rubber/cord laminate.

6. Claims 1-6 and 9-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Itoh (US 4,545,416). Itoh is directed to a rubber composition for embedding rubber (or topping rubber) for steel cords in the belt portion or carcass portion of radial tires (Abstract, Tables 1 and 2). In describing said rubber composition, Itoh suggests the use of an inorganic filler, such as silica, in a conventional amount (Column 4, Lines 40-50). In the specific examples of Tables 1 and 2, Itoh includes zinc white, which is an inorganic filler, in an amount of 5 phr and 8 phr (claims 3-6).

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Regarding claim 2, as stated above, the rubber compositions of Itoh are used in the carcass and belt structures. In each instance, there is a "rubber composition layer" that adjoins the respective tire components (i.e. tread, sidewall, and innerliner). As stated in the 112, 2nd Paragraph rejection above, the rubber composition layer is not required to contain an inorganic filler, although it represents a well known and extensively used additive in a variety of tire components.

As per claim 9, the claim only requires that a "rubber composition layer" adjoin a composite layer (rubber/cord laminate) and be arranged outward of said composite layer. In the instance where the composite layer is a belt layer in Itoh, the tread would represent a "rubber composition layer". Also, in the instance where the composite layer is a carcass structure, the sidewall would represent a "rubber composition layer".

With respect to claims 14 and 15, the specific examples of Itoh use the rubber compositions in a truck-bus tire (Column 4, Lines 52-55 and Column 5, Lines 10-11).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-6, 9, and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leo. Leo teaches the manufacture of a rubber/cord laminate having a high level of adhesion between rubber and metal (steel) before and after thermal aging, wherein said rubber contains magnesium oxide or magnesium carbonate (both

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inorganic fillers are suggested by applicant). In describing said laminate, Leo states the rubber compositions are "particularly well suited for use in the manufacture of metal-reinforced rubber articles, such as tires reinforced with steel or alloy-plated steel cords" (Column 2, Lines 15-20). It should also be noted that Leo describes magnesium oxide as the preferred magnesium compound (Column 1, Lines 7-15 and Column 2, Lines 38-51). However, Leo fails to expressly suggest the specific tire component and the specific type of tire. In any event, one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the "metal reinforced" layer of Leo to suggest a carcass or a belt reinforcement layer since both of these tire components represent the fundamental tire structure in which reinforcing elements are included. In addition, one of ordinary skill in the art at the time of the invention would have been motivated to use the carcass or belt structure of Leo in a variety of tires, including large-sized off-road tires, since the benefits of increased adhesion and reduced corrosion are desirable in all tires.

As per claims 2 and 9-13, applicant requires that there is a "rubber composition layer" that is adjacent the rubber/cord laminate. In this instance, as stated above, the claim is being examined as if the organic filler is required in at least one of the respective rubber layers. Leo generically describes the use of a rubber composition to form a topping or covering layer for a metal-reinforced tire component. While Leo fails to expressly suggest the claimed tire components (carcass or belt), it is clearly evident that the description of a tire with metal-reinforced rubber articles is directed to the use of the composition of Leo in a carcass or a belt as both of these tire components represent the fundamental tire structure in which reinforcing elements are included. Thus, if the

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rubber composition of Leo were used in either the carcass or the belt, it would necessarily be surrounded by an additional rubber composition. For example, if the rubber composition was used in a carcass structure, the innerliner or sidewall would represent a "rubber composition layer" that adjoins said carcass structure. Also, if the rubber composition were used in the belt structure, the tread would represent a "rubber composition layer" that adjoins said belt structure. It should be noted that the claim only requires the inclusion of a "rubber composition layer" that adjoins the rubber/cord laminate, although the use of an inorganic filler in the rubber composition layer represents the inclusion of a well known and extensively used additive in a variety of tire components.

With respect to claims 3-6, the magnesium compound is included in an amount that is less than 10 phr and preferably less than 5 phr (Column 2, Lines 57-60).

9. Claims 1-6 and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen (US 6,028,144). Nguyen is directed to a carcass rubber composition that includes an inorganic filler, such as calcium carbonate, clay, silica, talc, titanium dioxide, and mixtures thereof (Column 6, Lines 57-62). In this instance, however, Nguyen is completely silent with respect to the reinforcing materials in said carcass. In any event, steel represents an extremely well known and conventional carcass reinforcing material that provides excellent reinforcing properties, such as tensile strength, modulus, and elongation at break. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the carcass of Nguyen with steel cords as they represent one of the primary reinforcing materials that is extensively used in the manufacture of a variety of tire components, especially carcass structures.

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Regarding claims 2 and 9, a "rubber composition layer", such as an innerliner or a sidewall, surrounds the carcass structure of Nguyen. In particular, the sidewall rubber layer can be viewed as a "rubber composition layer" that is outward of the composite layer (rubber/cord laminate).

With respect to claims 3-6, while the reference fails to suggest a range for the inorganic filler, one of ordinary skill in the art at the time of the invention would have readily appreciated and expected the inorganic filler of Nguyen to be included within the range of the claimed invention since the range is broad and represents well known amounts of conventional additives.

As per claims 14 and 15, Nguyen states that the carcass composition "may be used in the production of carcasses **for any type of rubber tires**, for example, automobile tires" (Column 8, Lines 21-27). Thus, one of ordinary skill in the art at the time of the invention would have found it obvious to include the carcass of Nguyen in a large-sized, off road vehicle, there being no evidence of any criticality for employing the cord reinforced layer in a large-sized, off road vehicle.

10. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen as applied to claim 1 above and further in view of Hashimoto (US 4,714,734). Nguyen is directed to a carcass rubber composition that includes an inorganic filler, **such as** calcium carbonate, clay, silica, talc, titanium dioxide, and mixtures thereof (Column 6, Lines 57-62). While the reference fails to expressly suggest the use of hydrotalcite, one of ordinary skill in the art at the time of the invention would have recognized that hydrotalcite is a well known, inorganic filler in the tire industry that represents an equivalent and recognized alternative to the inorganic fillers detailed by

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Nguyen, as evidenced by Hashimoto. Hashimoto outlines a list of several, well known inorganic fillers for use in the tire industry, including calcium carbonate, clay, silica, talc, and hydrotalcite (Column 10, Lines 26-68). It should be noted that the specific hydrotalcite formula of the claimed invention represents the well known makeup of natural and synthetic hydrotalcite, such that one of ordinary skill in the art at the time of the invention would have recognized the hydrotalcite of Hashimoto as being analogous to that required by the claimed invention. One of ordinary skill in the art at the time of the invention would have found it obvious to include hydrotalcite in the rubber composition of Nguyen since hydrotalcite (a) represents a well known inorganic filler that is commonly associated with the inorganic fillers detailed by Nguyen and (b) provides the necessary adhesion and reinforcement properties in a given tire component, there being no evidence of any unexpected results to establish a criticality for the specific inorganic filler.

Regarding Tables 1 and 2, these results are not found to be conclusive evidence of "unexpected results" since the quantity of magnesium oxide and hydrotalcite is varied between rubber compositions and as such, it is unclear if the realized benefits should be attributed to the quantity of the inorganic filler or the specific inorganic filler. In particular, the use of 1 phr magnesium oxide (Example 4) produced better adhesion retention as compared to a rubber composition with 0.5 hydrotalcite (Example 1). Furthermore, better adhesion retention was only obtained when the quantity of hydrotalcite was increased to 5 and 10 phr in Examples 2 and 3, respectively. Thus, there is no evidence to suggest that the same or better results would not have been obtained if the same amount of magnesium oxide were present.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Uchino (JP 2000-7838) teaches a rubber composition for coating steel cords comprising a diene based elastomer, a porous inorganic filler, and optionally, a cobalt salt of an organic acid. Mori (JP 8-27333) discloses the use of hydrotalcite in a rubber composition that is used, among other things, as a tire innerliner.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397**. The examiner can normally be reached on M-F (7:30-4:00).

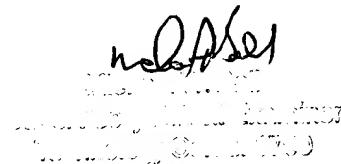
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Justin Fischer

October 25, 2002



Handwritten signature and a circular official stamp.